

## **A new species of the genus *Reductoniscus* Kesselyák, 1930 from Sabah, North Borneo, Malaysia (Isopoda: Oniscidea: Armadillidae)**

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**A new species of the genus *Reductoniscus* Kesselyák, 1930 from Sabah, North Borneo, Malaysia (Isopoda Oniscidea: Armadillidae).** - During a field trip to North Borneo, some terrestrial isopods had been collected, among them were the three specimens of a new species of *Reductoniscus* Kesselyák, 1930. A description of *Reductoniscus tuberculatus* sp. n. is given and the phylogenetic relationships of the members of *Reductoniscus* Kesselyák, 1930 are discussed.

**Key-words:** Isopoda - Oniscidea - Armadillidae - *Reductoniscus tuberculatus* n. sp. - taxonomy - phylogeny.

### INTRODUCTION

The genus *Reductoniscus* Kesselyák, 1930 (family Armadillidae) includes three recognised species which are known from Southeast Asia and Papua New Guinea. *Reductoniscus costulatus* Kesselyák, 1930, the type species, has also been found in the Hawaiian Islands and in greenhouses in western Europe, presumably introduced through human activity. Some species attributed to *Reductoniscus* Kesselyák have been described from the Neotropics (LEMONS DE CASTRO 1972) and Saint Helena Island (VANDEL 1977) but have since been transferred to different genera (FERRARA & TAITI 1990). *Reductoniscus* Kesselyák shows some distinctive autapomorphic characters (cf. FERRARA & TAITI 1990): tergites of pleonite 1-2 are reduced and the exopod of pleopod 1 is lacking. The species can conglobate, the schisma of pereonite 1 is connected with a groove which accompanies the entire length of the coxal plate with the inner lobe longer than the outer; pereonite 2 bears a lobe which is directed backwards; scutum of the profrons has a schismatic duplication of the border. The pereonites bear well developed ornamentation; species of the genus can be identified by details of the pereonal ornamentation. For differential characters from the genus *Pseudodiploexochus* Arcangeli, 1934 see FERRARA & TAITI (1983).

Acronymes used: MHNG = Muséum d'histoire naturelle, Geneva

ZMHB = Zoologisches Museum der Humboldt-Universität Berlin.

## DESCRIPTION

**Reductoniscus tuberculatus** sp. n.

Studied material: Holotype female 5 mm long, without marsupium, War Memorial Park, Sandakan, Sabah, Borneo, Malaysia; 21.12.1995 leg. Mr. S. Sugathan, ZMHB collection no. 27182.

Paratypes: 2 females 2-3 mm long, same data as holotype, MHNG and author's collection.

## Description:

Colour: Buff to rosy-cream coloration, without mottling. Profrons, ventrum and pereopods lack pigment.

Cephalothorax: Set back in pereonite 1. Supra-antennal line absent, frontal line producing a groove between vertex and profrons. Border of frontal scutum grooved, continuing the groove of pereonite 1. Vertex covered with 3 transverse rows of tubercles, frons with 2 bent grooves, receiving antennae during volvation. Eyes globose, composed of 6 large ommatidia (plate 1, Ctd/Ctf).

Pereon: Convex, heavily ornamented with costae and tubercles, protruding posteriorly on dorsum, most developed on pereonite 7, covering pleon in dorsal view. Junction between pereonites and coxal plates marked by carina-like costa (2 on the pereonite 1). Coxal plate 1 with groove along entire length. Inner lobe of schisma protruding the outer caudally. Coxal plate 2 with caudally directed tooth with rounded apex. (plate 1, Cxp). Shape of coxal plates 2-3 triangular, 4-5 rounded, 6-7 rectangular.

Pleon: Pleonites 1 and 2 reduced. Pleonites 3-5 well developed, slightly protruding backwards, without ornamentation, with dense cover of tricorn-like setae (plate 1, PLc/Hal).

Pleotelson: Twice as wide as long, distal margin slightly convex, medially with 2 inconspicuous tubercles, covered with tricorn-like setae (plate 1, Ste).

## Appendages:

Antennula: Composed of 3 articles. articles 1 and 3 subequal in length, almost 3 times as long as second. Article 2 with small tooth medially, article 3 acute, bearing 6 aesthetascs distally (plate 3, An1).

Antenna: Article 1 stout, articles 2, 4 and 5 subequal in length with article 3 intermediate. All scaled, covered with tricorn-like setae and sensory spines, longest spines latero-distally on article 5. Flagellum biarticulate, article 2 twice as long as article 1, with dense setation, 2 aesthetascs medially on distal article. Terminal bristle shorter than distal article (plate 5, An2).

## Mouthparts:

Mandible: Molar penicil simple, appearing slightly furrowed. On left mandible pars intermedia with 2 stout penicils and some small, coniform setae, additional penicil half way between molar penicil and pars intermedia. Right mandible with only molar penicil and 2 penicils on pars intermedia (plate 2, Mdl/Mdr).

Maxillula: Lateral endite of maxillula with 4+4 teeth distally, all with rounded apices, lateral margin with short setae distally. Medial endite with 2 stout, close set penicils. (plate 2, Mxl/Mxm).

Maxilla: Both lobes rounded, lateral lobe dominant, covered with faint hairlike setae, medial lobe with stronger, but short setae on medio-distal margin (plate 2, Mx2).

Maxilliped: Basis scaled on latero-proximal edge, covered with tricorn-like setae. Palp composed of 2 articles, proximal with 2 unequal setae, distal terminated by setal tuft, second setal tuft more medio-proximally with 1 strong seta, 2 setae on medial margin half way the second article. Endite with strong seta distally on caudal surface. Rostral surface with hairlike setae on medial margin, distal border dentate. Epipod slender, slightly shorter than base (plate 2, Mxp).

Pereopods: Stout, carpus to basis scaled, all articles covered with tricorns and tricorn-like setae, medial border of propus to merus with sensory spines. Dactylus slender, secondary unguis weak, dactylar seta flagelliform (figs 3-4).

Pleopods: First female pleopod reduced, second lacking the endopod. Exopods reniform, with pleopodal lungs, medial margin with pectinate scales on rostral surface. Pleopod 5 exopod with pectinate scales on caudal surface along lateral margin, too (plate 5, PL2-5).

Uropod: Protopodite subrectangular, laterally concave, distally obtuse, with fringe of tricornlike setae. Exopod reduced to a tuft of setae, endopod with some tricorn-like setae.

#### R e m a r k s :

FERRARA & TAITI (1990) recently revised the genus *Reductoniscus* Kesselyák and transferred all species but the type *Reductoniscus costulatus* Kesselyák and 2 newly described species from New Ireland to other genera. *Reductoniscus tuberculatus* sp. n. can be separated from its congeners by the characteristic ornamentation the carinated costae on the coxal plates and the great protrusion of pereonite 7, justifying the description of a new species of Oniscidea in the absence of males. The largest specimen of *Reductoniscus tuberculatus* sp. n. has more ommatidia than the other known species, i. e. 6 instead of 5 in specimens of equal size (*Reductoniscus novaehiberniae* Ferrara & Taiti, 1990). The pleotelson tuberculation resembles that of *R. novaehiberniae* Ferrara & Taiti, 1990, which has 2 slight tubercles, certainly a plesiomorphy within this genus, since all species but *R. pulcher* Ferrara & Taiti, 1990 show this character. The ornamentation of *R. costulatus* Kesselyák might be close to the groundpattern of the genus, while in the other species the tubercles of pereonite 7 are fused to form a hump. This hump is most conspicuous in *R. tuberculatus* sp. n. as are the dorsal tubercles and it might be the sister species of the two representatives from New Ireland, which have in common a very prominent carina c2 (according to terminology used by HOLTHUIS 1947) on their pereonites and less tuberculation medially of the carinae, representing apomorphic characters.

The record of *Reductoniscus tuberculatus* sp. n. on Borneo leads to the assumption, that this genus might be well represented in the indo-pacific region. Since the animals are of small size, with a maximum length of 5 mm, they might have been overlooked by former field studies on malaysian Oniscidea (cf. HEROLD 1932; SCHULTZ 1982; GREEN *et al.* 1990). It might be another example for genera occurring both in the oriental and the austral region.

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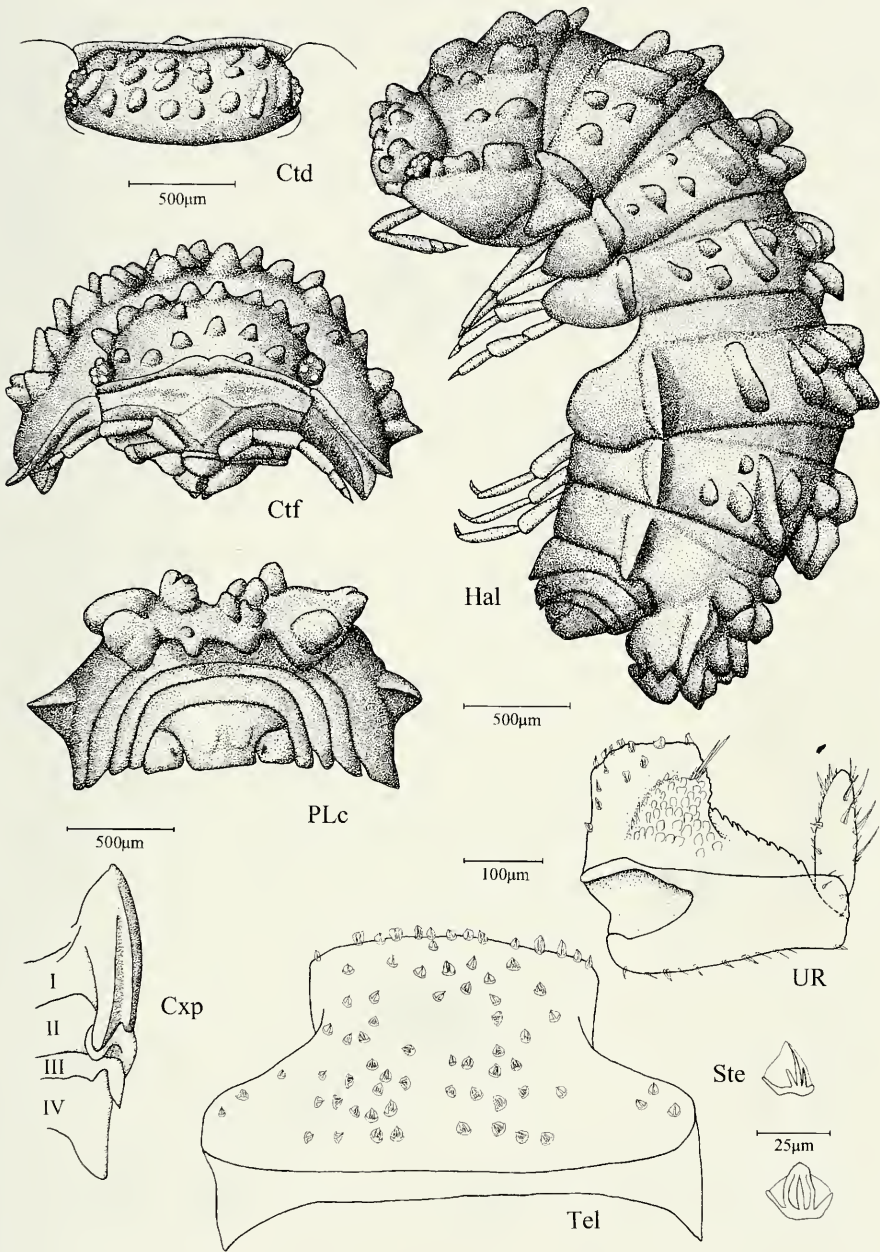


PLATE 1: Ctd cephalothorax, dorsal view; Ctf cephalothorax, frontal view; Cxp coxal plates 1-4, ventral view; Hal habitus, lateral view; Plc pleon and seventh pereonite, caudal view; Ste tricorn-like setae of pleotelson; UR uropod; female holotype.

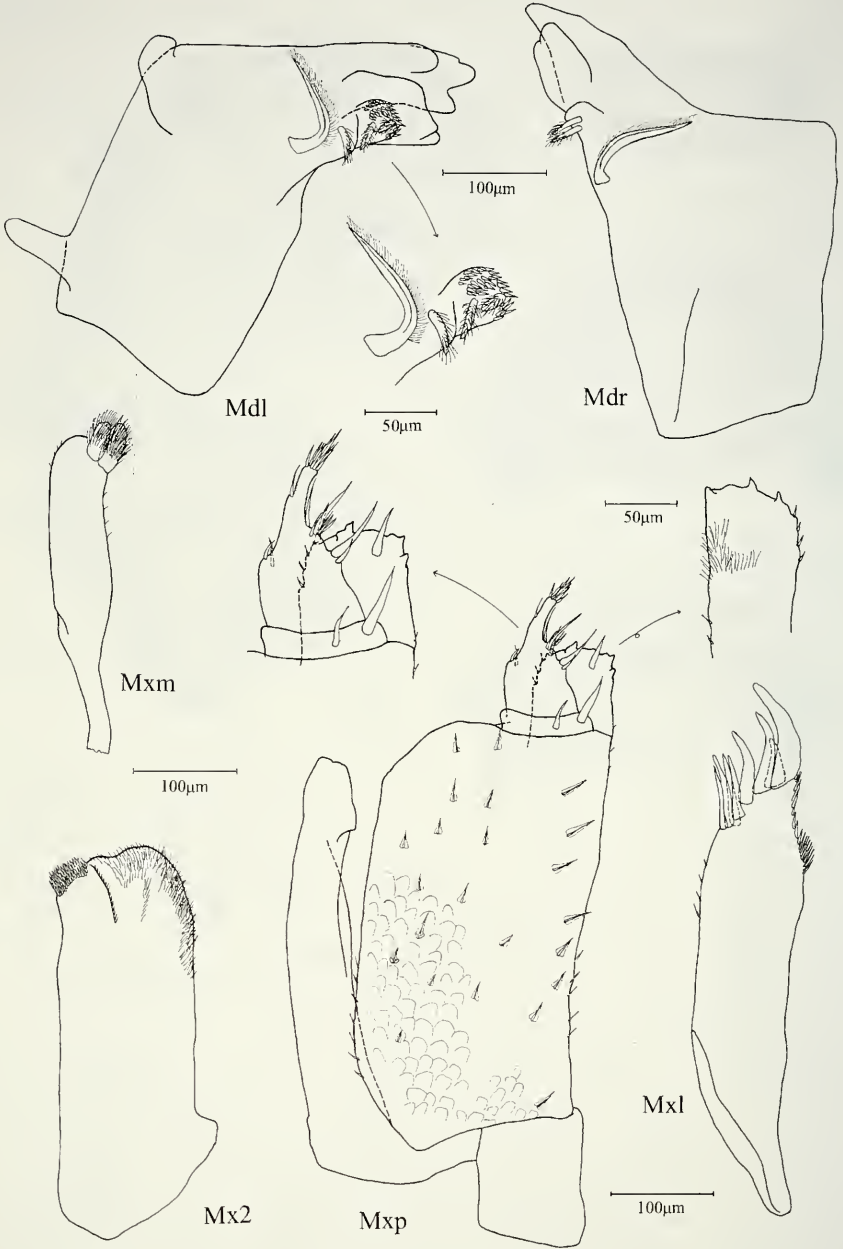


PLATE 2: Mdl left mandible with detail of pars intermedia; Mdr right mandible; Mx2 maxilla; Mxl lateral endite of maxillula; Mxm medial endite of maxillula; Mxp maxilliped with detail of palp and rostral surface of endite; female holotype.

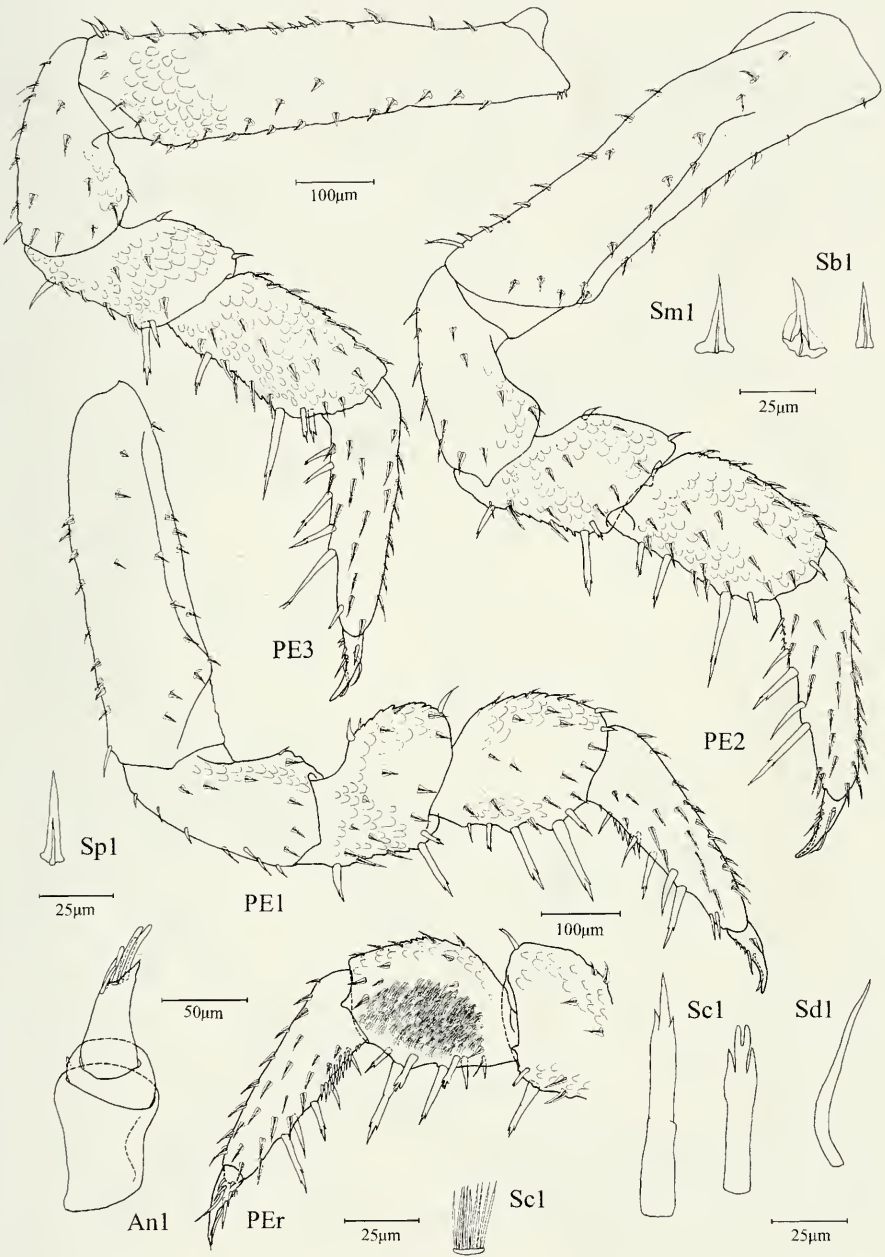


PLATE 3: An1 antenna; PE1-3 pereopod 1-3; PER rostral view of distal articles of pereopod 1; Sb1 tricorn-like setae of basis 1; Scl pectinate scales and sensory spines of carpus 1; Sd1 dactylar seta of pereopod 1; Sml tricorn-like seta of merus 1; Sp1 tricorn-like seta of propus 1, female holotype .

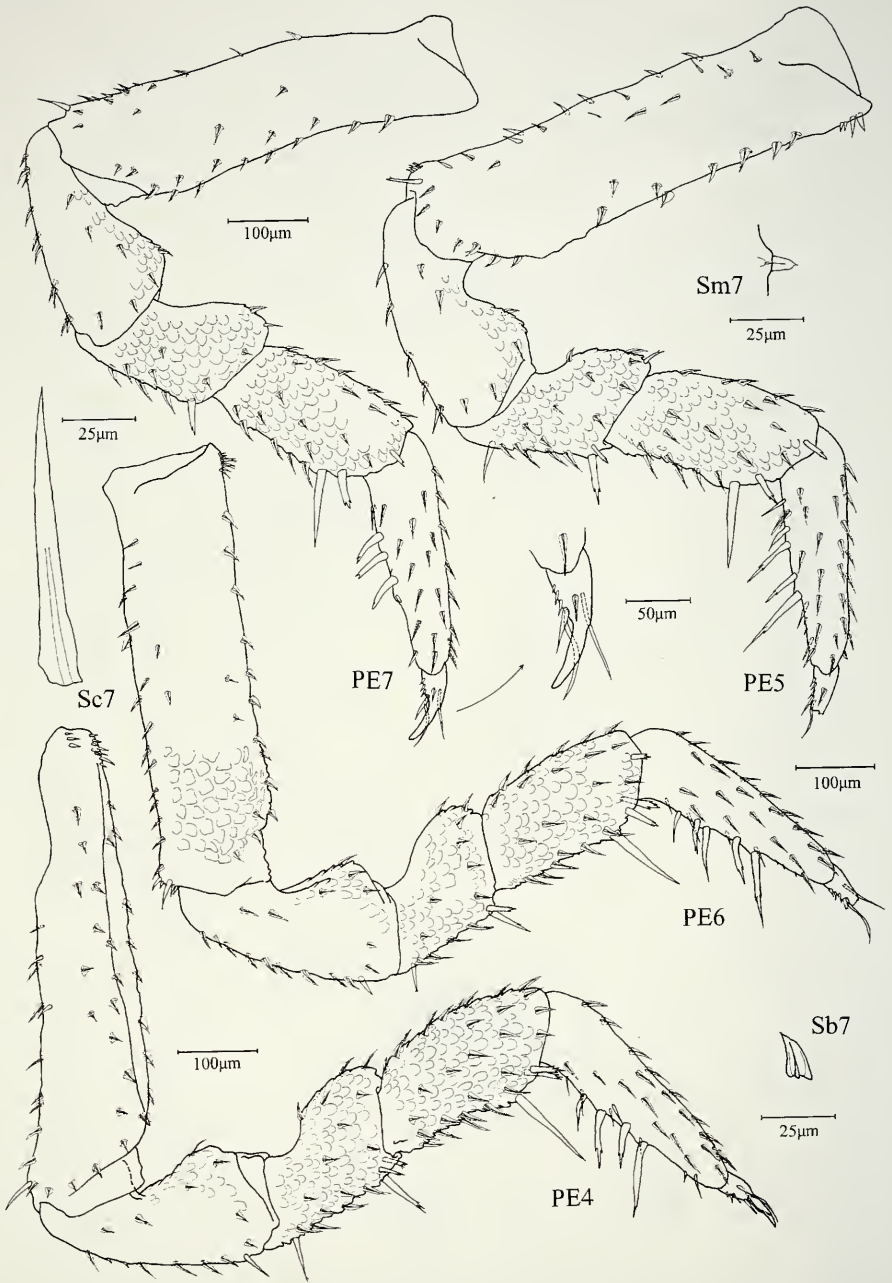


PLATE 4: PE4-7 pereopods 4-7; Sb7 tricorn-like seta of basis 7; Sc7 sensory spine of carpus 7; Sm7 tricorn-like seta of merus 7; female holotype.



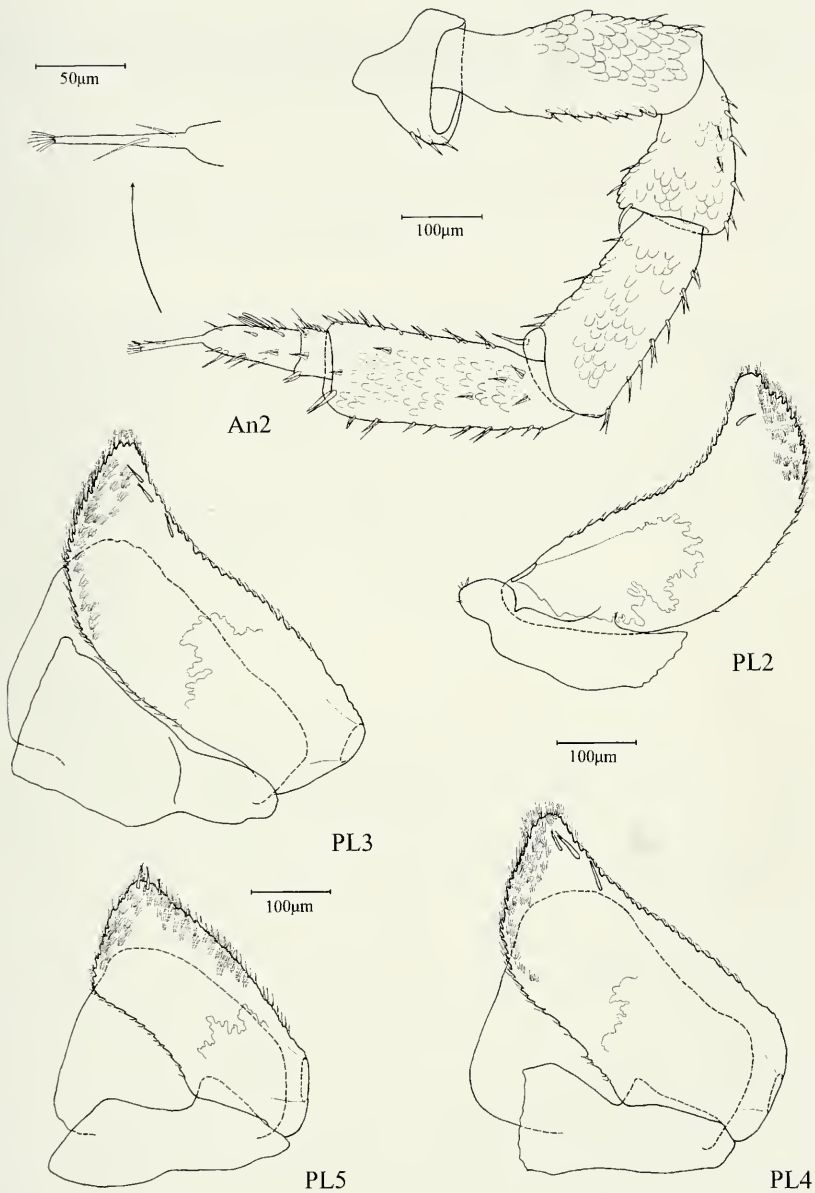


PLATE 5: An2 antenna with detail of terminal bristle; PL2-5 pleopods 2-5 with visible borders of lungs, in pleopod 3-5 obscured by pigmentation; female holotype.